CLAIMS

1. An isotonic interface (1) for controlling a real or virtual object, the interface being characterized in that it comprises:

· support means for supporting three pivot shafts (3, 4, 5), the axes (A, B) of the first and second shafts being mutually parallel and perpendicular to the axis (C) of the third shaft;

· handle means (6) enabling each of said shafts (3, 4, 5) to be pivoted; and

· measurement means (7) for measuring the displacement of each of said shafts so as to enable a real or virtual object to be controlled in three degrees of freedom.

2. An isotonic interface according to claim 1, in which said support means (2) comprise:

· a support element (8) secured to a base (9) and connected to the first shaft (3) via a first pivot connection;

· an arm (10) secured perpendicularly to the first shaft (3) and connected to the second shaft (4) via a second pivot connection; and

· a connection element (11) secured to the second shaft (4) and connected to said third shaft (5) via a third pivot connection.

3. An isotonic interface according to claim 2, in which said support means (2) include a second support element (14) secured to the base (9) and connected to the first shaft (3) via a pivot connection enabling the stability of the interface (1) to be increased.

4. An isotonic interface according to claim 2 or claim 3, in which the support means (2) include a second arm (15) parallel to the first, secured to the first shaft (3) and

connected to said connection element (11) via a fourth shaft (16).

5. An isotonic interface according to any one of claims 1 to 4, in which the handle means (6) comprise a rod (13) having its distal end secured to the third shaft (5).

6. An isotonic interface according to claim 5, in which the handle means (6) include an endpiece (12) disposed at the proximal end of the rod (13) and enabling it to be grasped prismatically.

7. An isotonic interface according to claim 5 or claim 6, in which the distal end of said rod (13) is disposed at the interaction between the axes of rotation of the second and third shafts (4, 5).

8. An isotonic interface according to any one of claims 1 to 7, in which said measurement means (7) are constituted by angular position sensors disposed on the first, second, and third shafts (3, 4, 5).

9. An isotonic interface according to any one of claims 1 to 8, in which at least one of said shafts (3, 4, 5) includes drive means enabling a force return to be applied to the interface (1).

10. An isotonic interface according to any one of claims 2 to 9, in which the height of the support element (8) lies in the range 100 mm to 130 mm.

11. An isotonic interface according to any one of claims 2 to 10, in which the length of the arm (10) lies in the range 50 mm to 60 mm.

12. An isotonic interface according to any one of claims 5 to 11, in which the length of the rod (13) lies in the range 70 mm to 90 mm.

13. An isotonic interface according to any one of claims 1 to 12, in which provision is made for additional control means for controlling said real or virtual object, enabling said object to be controlled in at least one additional degree of freedom.

14. An isotonic interface according to any one of claims 1 to 13, in which position-holding means are provided serving to avoid any significant departure of the rod (13) from its most recent position when the user lets go the rod.

15. An isotonic interface according to preceding claim 14, in which the position-holding means comprise a counterweight and passive brake means.